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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/683,031 | 11/09/2001 | Alevtina Smimova | 200-1215 DP | 6086 |

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EXAMINER

NOLAN, SANDRA M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1772

DATE MAILED: 01/02/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary

Application No.

09/683,031

Applicant(s)

SMIRNOVA ET AL.

Examiner

Sandra M. Nolan

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 14-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

Claims

1. Claims 1-27 are pending.

Claims 1-13 are under consideration. See section 2.

Election/Restriction

2. Applicant's election without traverse of Group 1, claims 1-13, in Paper No. 5 (the response dated 06 November 2002) is acknowledged.

Claims 14-27 are withdrawn from consideration as nonelected.

Information Disclosure Statement

3. The information disclosure statement filed 09 November 2001 (Paper No. 2) fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

See the enclosed copy of Paper No. 2, on which the examiner has crossed out all of the cited documents.

Specification

4. The title is too long. Please submit a new title that contains seven words or less.
5. The disclosure is objected to because of the following informalities: the bracketed title shown in extra-large font on pages 1 and 16 should be deleted. Note, too, that bracketed text should not be submitted in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- WLD
per
Arg 7. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

What does "thin-walled" mean? Please clarify the claims.

- WLD
per
Arg 8. Claim 13 recites the limitation "metal precursor powder" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Please revise the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Barnard et al (US 5,574,957).

Barnard teaches structures made by a process of: mixing zirconia (col. 8, line 42), zirconium (col. 8, line 48) or yttria (col. 9, line 8) with a styrene/butadiene copolymer binder (col. 7, line 52) and a solvent, (col. 9, line 36); extruding (abstract); and sintering (col. 1, lines 66+ and col. 12, lines 37+)).

The examiner notes that the sintering temperatures used by Barnard, i.e., 1,000 to 1,300 °C (col. 12, lines 42+), would inherently burn off the polymer binder.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Theodore et al (US 4,615,851) in view of Barnard and JP 04327216A (abstract).

Theodore teaches, in its abstract, the preparation of tubes of ceramic materials by mixing binders, such as styrene/butadiene copolymers (col. 5, lines 12+), and polystyrene with polyindene (col. 6, lines 34+) with oil and wax (col. 5, lines 29+) and esters as "plasticizer processing aid[s]" (col. 6, lines 45+). The tubes have thin walls and are made via burn out and sintering steps (first sentence of the abstract).

The examiner deems Theodore's "plasticizer processing aid[s]" to be solvents for its binders.

Theodore fails to teach yttria/zirconia mixtures or solvents other than esters.

Barnard is discussed above.

JP 04327216A teaches the production of ceramic rods from extruded (title) compositions containing zirconia/yttria mixtures, organic dispersing media--such as alcohol, hydrocarbon, "halogenised" hydrocarbon, ketone, ester and ether media--and

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polystyrene resin (second paragraph). The compositions are sintered (first paragraph of abstract). The yttria is taught to be a sintering aid (second paragraph).

The examiner interprets applicants' "solvent" to encompass the Japanese "media". In addition, the use of solvents for one or more of the references' resin binders would be an obvious way to improve the admixing of the binder and ceramic/metal components.

The references are analogous because they all deal with sintered products made from polymer-based compositions.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the yttria sintering aid and organic media of the Japanese abstract along with the plasticizer of Barnard in the compositions of Theodore in order to produce extruded, then sintered articles having thin walls.

In the absence of convincing objective evidence to the contrary, the use of an antioxidant in the compositions suggested by the combination of Theodore with Barnard and the Japanese abstract is a matter of engineering choice, depending upon whether or not the compositions are to be stored/transported prior to the sintering process.

In the absence of convincing objective evidence to the contrary, the use of any suitable solvent in the compositions suggested by the combination of Theodore with Barnard and the Japanese abstract is a matter of engineering choice, depending upon how well one wanted the resin binder(s) to mix with the ceramic/metal particles used.

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Conclusion

Any inquiry concerning this communication should be directed to the Examiner, Sandra M. Nolan, whose telephone number is 703/308-9545. The Examiner can normally be reached on Monday through Thursday, from 6:30 am to 4:00 pm, Eastern Time.

If attempts to reach the Examiner by telephone are unsuccessful, her supervisor, Harold Pyon, can be reached at 703/308-4251. The general fax number for the art unit is 703/305-5436. The fax number for after final communications is 703/872-9310. The receptionist answers 703/308-0661.



S. M. Nolan
Patent Examiner
Technology Center 1700

SMN/smn
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